

Technical Report 1086

**Self-Assessment Based Mini-After Action Review
(SAMAAR) Methodology: Developmental
Application to Division Artillery Staff Training**

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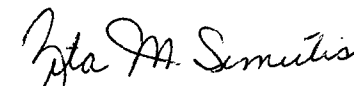
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FOREWORD

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts research on how to design unit training strategies. Within the past few years, its mission has been extended to include the Army's role in inter service training. This document is one of a series of reports that have been produced under the Joint and Multi-Service Distributed Training Testbed (JMDT2) program. The purpose of the program has been to apply the basic concepts of instructional systems design (ISD) to the development and management of inter service training. A critical feature of ISD is assessment of training progress and remedial feedback.

This report summarizes the beginning of innovative efforts to introduce ground breaking new ideas about training feedback. These ideas are extensions of classical ISD concepts, especially tailored to the unstructured, non-linear, often fuzzy conditions of high echelon inter service mission planning and management. The work extends the Army's Socratic after action review (AAR) method of feedback by adding the philosophy and methods of the Delphi Approach. The trainee is recognized as an untapped source of a wealth of information about training deficiencies and training progress, particularly in inter service training. Methods for extracting that information according to Delphi procedures were developed and then pilot tested in a division artillery staff training exercise at Fort Hood, in February, 1998. Preliminary results of an assessment of user reactions indicate that the methodology can substantially leverage the effectiveness of future staff training at high echelons, whether single or inter service.


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SELF-ASSESSMENT BASED MINI-AAR (SAMAAR) METHODOLOGY: DEVELOPMENTAL RESEARCH IN DIVISION ARTILLERY STAFF TRAINING

EXECUTIVE SUMMARY

Research Requirement:

The overall requirement was to pilot test the Self-Assessment Based Mini-After Action Review (SAMAAR) methodology. Specific goals included the following: (1) Assess the value and features of SAMAAR tools; (2) Assess problems in research Implementation of SAMAAR; and (3) Compile "Lessons Learned" for follow-up Corps-level Research Application of SAMAAR.

Procedure:

The research test bed was provided by a regularly scheduled field training exercise (FTX) of the 1st Cavalry Division Artillery Staff at Fort Hood, TX. Research participants included members of three staff elements: Operations (Ops), Fire Control Element (FCE), and the Division Tactical Center Fire Support Element (DTAC FSE). A self-assessment checklist was distributed to staff members at the beginning of each of two days of a field training exercise, along with some job aids describing the tasks for each staff element. It was anticipated that filling out the checklist forms would be a preliminary step in preparation for an end of shift mini-AAR on each day. For a variety of administrative reasons the mini-AARs were not conducted, but the checklists were completed by staff members. At the end of two exercise days, a questionnaire to assess the value of the self-assessment approach and tools was administered.

Findings:

The SAMAAR approach was judged to be useful and timely for surfacing training problems that otherwise might be overlooked. The self-assessment checklist was judged to be clear and easy to complete. It was demonstrated how checklist data under standardized conditions can provide a way to track training progress across unit elements and mission days. The value and appropriate use of the job aids - task flow charts and tables - are inconclusive. The job aids require further development and test.

Use of Findings:

The findings provide a technical base for further research and development of the self-assessment approach in a joint training environment. Lessons were learned about how to improve the implementation of the self-assessment methodology and how to conduct research on its effectiveness.

SELF-ASSESSMENT BASED MINI-AAR (SAMAAR) METHODOLOGY:
DEVELOPMENTAL RESEARCH IN DIVISION ARTILLERY STAFF TRAINING

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Self-Assessment Based Mini-After Action Review (SAMAAR) Methodology:
Developmental Application to Division Artillery Staff Training

INTRODUCTION

Program Background

This report describes research conducted as part of an ARI program to develop measures and methods for supporting after action reviews (AARs) in joint and multi-service training. The purpose of the report is to summarize developmental research on a Self-Assessment Based, Mini-After Action Review (SAMAAR) methodology that has evolved from earlier efforts by and under the auspices of the US Army Research Institute (ARI) (Love, 1998a, 1998b, 1998c). The current research was conducted as a supplement to a Division Artillery (DivArty) Staff Training Event at Fort Hood, in January 1998. It resulted in "lessons learned" for follow-on research dealing with joint training.

The SAMAAR methodology is designed to increase the efficiency and effectiveness of training feedback and, in turn, training effectiveness. Training feedback is defined here as diagnostic information regarding the effectiveness of task performance. The ARI program focuses on feedback generated by the trainees themselves (i.e., "self-assessment") and incorporated into daily staff cell AARs (i.e., "mini" AARs) conducted prior to unit-wide AARs at the end of exercises (EndExs).

The Army uses a standardized form of AAR which draws heavily on the trainees' assessments of their units' strengths and needs for improvement (Brown, Wilkinson, Nordyke, Riede, Huyssoon, Aguilar, & Wonsewitz, & Meliza, 1997, p. 3; Department of the Army, 1993; Dyer, 1994; Keene, 1994; Meliza, 1996; & Scott, 1984). This form is, in fact, an application of the Socratic method. In a typical Army AAR, a senior observer/controller (O/C) moderates a discussion of what happened, how and why it happened, and how unit performance can be improved in subsequent exercises or exercise phases. Consistent with the Socratic method, the Senior O/C is likely to steer the discussion towards particular problems which he and his cadre of O/Cs have noted and documented during the training exercise. But he will through questioning draw out from the trainees descriptions of their own experiences and thought processes.

The AAR methodology is based on the assumption that active involvement of the trainee yields motivational and learning benefits. Furthermore, the trainee provides critical information and judgments about training effectiveness, judgments which supplement information and assessments made by O/Cs (Scott, 1983, pp. 2-5).

This AAR methodology has been exploited and institutionalized extensively for tactical training at the combat training centers (CTCs) where complex instrumentation and trained cadres of O/Cs are available (Dyer, 1994; Sulzen, 1997; U.S. Army Research Institute, 1992). But the methodology is less thoroughly used in the joint and multi-service arenas, even though AAR principles and practices are explicitly and thoroughly detailed in the Joint Training Manual (Joint Chiefs of Staff, 1996a). "Hot washes" (i.e., short summary briefings about exercise pluses

and minuses in key areas) and after-action reports do provide good training feedback in Theater and Joint Task Force (JTF) level training events. However, these occur at the end of two to three week rotations, are aimed primarily at senior leadership, and deal as much with training system and training management problems as with staff performance problems. Some observer/trainers may hold an AAR following an exercise, but even this is not done after every exercise. The foregoing is not a criticism, but simply an observation about an opportunity to leverage joint training effectiveness at relatively little cost.

According to psychological principles, training feedback needs to be done frequently and close to the targeted performance to be effective (Fedor & Buckley, 1987; Weinstein, Goetz, & Alexander, 1988, p. 122;). Its effectiveness has been shown to decrease in an inverse exponential manner, i.e., effectiveness drops sharply at first, then levels off (Klein, 1991, p. 137; Wolfle, 1951). "Theory" also recognizes that trainees have valid and valuable insights into training progress and effectiveness (Dominick, Reilly, & McGourty, 1997; Keesling, Ford, & Harrison, 1994; Mirabella, Sticha, & Morrison, 1997; Zazanis & Lappin, 1998). For example, evidence from National Training Center (NTC) exercises supports the validity of self-assessment for battalion task force training. In these exercises effectiveness ratings by battalion staff personnel agreed with ratings by O/Cs (Keesling, Ford, & Harrison, 1994, p. 145). Zazanis and Lappin (1998) studied the use of trainees as sources of evaluation data for special forces training. Their research suggested that such data "... may provide the most critical and irreplaceable information in situations that have a high requirement for interpersonal skills, or that have difficult or ambiguous tasks requiring high levels of effort or persistence." Therefore, a wealth of knowledge may remain untapped in the experiences of trainees, knowledge that can be extracted through enhanced self-assessment tools and methods. The characteristics of that methodology are described below.

The SAMAAR Approach

Overview

The SAMAAR approach expands the philosophy and techniques of the Army's Socratic AAR method by adding the philosophy and techniques of the Delphi method. The Army's approach has already been described. The Delphi method adds a mechanism for trainees to individually think about and document their perceptions of unit training progress at their level of experience, so that they are well prepared to contribute to a follow-up mini-AAR. The mechanism is designed to draw out participant experience, maximally and efficiently, while correcting limitations in a given trainee's situation awareness.

In its original applications Delphi was used to facilitate the efforts of experts to solve fuzzy, complex national policy problems. The experts were asked to generate and document solutions individually and then convene for group discussion to reconcile differences and arrive at an efficient consensus. In getting to the consensus, differences among the experts were discussed. These might be the result of different premises or experiences. They were factored into the consensus solution. Thus Delphi was a mechanism for increasing the reliability of subjective "measurement."

An adaptation of Delphi philosophy and techniques appears well suited to assessing staff training performance, especially the very "soft" skills inherent in operations planning and concept development. These soft skills become increasingly important at increasing echelon levels and are prevalent in joint training environments.

Measurement Characteristics

Trainee as the Data Generator. Collective training effectiveness measurement has traditionally employed O/Cs, electronic data streams, or both as data sources as at the Army's Combat Training Centers. O/C cadres are employed as data generators for: (a) ARI's Army Command and Control Evaluation System (ACCES), (b) the Naval Air Warfare Center's Tactically Relevant Assessment of Combat Teams (TRACT), and (c) The Tactically Relevant Assessment of Combat Events (TRACE) methodologies, as well as for most joint training exercises. The SAMAAR approach is somewhat unique in viewing the trainee as a surrogate O/C and as a key source of training assessment data. Therefore, where an O/C cadre is available it would be leveraged by the trainees. Where a cadre is not available, the trainees would act a surrogate cadre.

Task as Unit of Analysis. The SAMAAR methodology is task oriented rather than events-based. A similar orientation can be seen for the measurement approach in the Universal Joint Task List (UJTL). But SAMAAR *contrasts* with TRACE, which is used to verify the actual occurrence of fine-grained, sequenced combat events against a list of expected events. SAMAAR is more consistent with a view of battle as dynamically nonlinear and complexly interactive. TRACE is more consistent with a view of battle as a predictable sequence of events. Each perspective is a simplifying assumption since combat clearly has both linear and nonlinear characteristics. Nonetheless, the perspectives are not necessarily equally useful in generating measurement methodology for supporting training feedback. A forerunner of TRACE was found to be only marginally useful in supporting AARs in a battalion task force, simulation-based training event (Mirabella, Sticha, & Morrison, 1997). SAMAAR, on the other hand, has evolved specifically with AARs in mind. SAMAAR also contrasts with approaches that attempt to measure universal (psychological) teamwork characteristics, *e.g.*, the TRACT methodology. A forerunner of TRACT was also examined in the battalion task force exercises. Exercise O/Cs were unanimous in reporting that it was not useful for preparing or conducting AARs (Mirabella, Sticha, & Morrison, 1997).

Process and Product Measurement. SAMAAR measures behavioral processes as well as products and directly assesses perceived training deficiencies. It contrasts with ACCES (Halpin, 1996) and with the UJTL (Joint Chiefs of Staff, 1995, 1996a,b) measurement scheme. ACCES and UJTL employ "statistical" dimensions to measure the outputs of process, *e.g.*, percentage, duration, quantity, and distance. This "statistical" approach for feedback has received some negative comment (*e.g.*, at the 1997 Universal Joint Task List Conference, Joint Warfighting Center, Fort Monroe, VA) as being too rigid, restrictive, and fine-grained for the "fuzzy" character of training at high echelons. SAMAAR is deliberately more discursive; it avoids the emphasis on mathematical precision implicit in ACCES and UJTL.

Easy Application. SAMAAR is designed for frequent application (e.g., immediately following the end of each shift). It calls for a 15-minute period at the end of a day or shift for trainees to fill out an assessment of their cell's performance, using a short checklist about key products and processes. This activity is followed by a mini-AAR which is led by the senior member of a staff cell (or tactical sub unit). Availability of an O/C cadre is not assumed for use of the methodology. AARs that rely on O/C or electronic data require extensive preparation time and personnel resources (Brown et al, 1997; Meliza, 1996)

Multiple Uses. The SAMAAR approach is designed to maximize involvement of all players in the training process and learning experience. First it provides an unconstrained opportunity for each member of a staff cell to record his or her reactions to training progress. Then it provides for a meeting in which each staff member's voice has equal weight in arriving at a consensus (or disagreements) on where training improvements are needed.

The method can also facilitate hand-off to the next shift. Problems identified by staff cells in one shift can be highlighted for cells in the following shift. Similarly inter-cell problems, e.g., communication shortfalls, can be addressed for the benefit of that and subsequent shifts.

Finally, results of the SAMAAR process can be made available for and integrated into unit-wide AARs at the end of the training event or rotation. As part of this, the results of the SAMAAR process could be used to do a trend analysis across days within the training event or across training events.

Anticipated Training Benefits

Based upon principles of learning psychology, we can anticipate the following positive effects of the SAMAAR approach on training progress:

1. *Timely Feedback.* It was mentioned earlier that the effectiveness of training feedback increases the closer it is given to when the targeted performance occurs. The logistic simplicity of SAMAAR makes frequent application of the approach feasible.

2. *Increased Time on Task (TOT).* The SAMAAR approach is a very efficient way to amplify the effective amount of practice time on mission-essential tasks, because in half an hour or so, attention can be focused on tasks most in need of improvement. This can be viewed almost as a form of compressed training. In turn, the increased TOT can substantially raise the unit's skill level and decrease the rate of skill decay (Loftus, 1985; Mirabella, Macpherson, & Patterson, 1989, p. 40).

3. *Active Involvement.* The method increases active involvement by encouraging inputs to the feedback process from each member of a staff cell or other sub-unit involved in mini-AARs. Active participation is critical to effective training (Mirabella, Macpherson, & Patterson, 1989; Travers, Van Wagenen, Haygood, & McCormick, 1964).

SAMAAR Procedures

Orientation

The purpose of SAMAAR and its procedures need to be clearly explained to all the trainees who will be asked to fill in the self-assessment checklists and take part in the mini-AARs. Orientation should not be limited to the staff cell leaders. The orientation should stress that SAMAAR is designed to encourage *all* the trainees to participate in and contribute to the AAR process. But it's meant to provide a set of tools, not a "straight jacket." It also needs to be clear that filling out the checklist is a way for the trainees to record their opinions about training progress so that they can contribute to the follow-up mini-AAR. Finally, the SAMAAR orientation should be included with other pre-exercise preparations, so that it becomes an integral part of the training, rather than a fringe activity.

Administration of Self-Assessment Checklist

At the end of a shift, trainees should be gathered in a setting as comfortable as circumstances will permit. Provide a table if possible and offer pencils. Go over the highlights of the initial orientation. Then explain the different parts of the checklist and the rating procedure, e.g., explain what the checklist categories mean. Pick out a few items and illustrate some possible reactions to those items. Encourage the participants to add comments, especially where trainees indicate a need for improvement. Finally, ask for questions and have the trainees complete the self-assessment checklist.

Conduct of the Mini-AAR

"House Rules"

- Everyone has an equal voice in discussion; no one has all the answers. Listening and talking are equally important to good training feedback.
- Focus on what happened, what needs improvement, and how to improve.
- Use the mini-AAR to spot and clear up misunderstandings about mission process or product, especially for new staff members.

Procedures for Conducting "Self-Assessment" Mini-AARs

- Staff cell gets together at the end of each shift for a mini-AAR. Staff members bring their filled-out checklists to help them contribute to the mini-AAR.
- Senior cell member leads the mini-AAR, starting with a blank checklist
- Steps for conducting the mini-AAR.
 - a. Address each checklist item in turn.
 - b. If everyone agrees to a satisfactory rating, go to the next item.

- c. Otherwise, discuss the item and make notes on training problems and solutions.
- d. If a member of the cell (e.g., new replacement) doesn't understand a mission product or process, use this opportunity to clear up questions. Then:
 - > AAR leader records a consensus response.
 - > If no consensus, leader picks a response, but makes notes on disagreements.
- e. Keep the consensus sheet for use in shift change over, to check progress over subsequent shifts or mission phases, and as an input to a larger AAR at the end of the training rotation.

Research Goals

Overall Goal

Pilot Research Application of SAMAAR Approach. The primary audience for SAMAAR is the joint training community. However, the division artillery exercises at Fort Hood provided a target of opportunity and a credible surrogate environment to conduct *pilot research* in preparation for an anticipated joint training research application. But, in addition, the results of the pilot application were expected to extend the Army's technical base on training feedback.

Specific Objectives

1. Assessment of Value and Features of SAMAAR Tools. A major goal was to assess user reactions to the following questions: Does the SAMAAR approach and its specific tools add value to staff training exercises? What improvements or revisions are needed?
2. Assessment of Problems in Research Implementation of SAMAAR. Since this was a pilot effort to support follow-on research planning, an important objective was to document problems in scheduling and administering SAMAAR and research procedures. How well could these be incorporated into the on-going exercises, given the constraint of non-interference? What difficulties would the units experience in using the self-assessment checklist to conduct mini-AARs?
3. Compilation of "Lessons Learned" for Corps-Level Research Application of SAMAAR. This objective was to draw on our division Artillery experience to design SAMAAR and write a research plan for follow-on research in a joint, corps-level exercise test bed.

METHOD

Test Bed

The research test bed was provided by a regularly scheduled field training exercise (FTX) of the 1st Cavalry Division Artillery Staff at Fort Hood, TX. This was a three-day exercise from 20 to 22 January 1998. One shift of trainees participated on Days 1 and 3; a second shift participated on Day 2. The FTX differed in one important respect from other rotations. It provided a primary test bed for research by the Fort Sill Field Unit of the Army Research Laboratory (ARL). ARI worked under the auspices of ARL, on the basis of non-interference with either the exercise or the ARL research activities. ARL's purpose was to examine the training effectiveness of a simulator/stimulator developed for operational testing, the Fire Support Automated Test System (FSATS). A related purpose was to test combat team measurement instruments adapted from the Mult-Service Distributed Training Test Bed (MDT2) program (Bell, Dwyer, Love, Meliza, Mirabella, & Moses, 1997).

Participants

Research participants included members of four staff elements: Operations (OPS), Fire Control Element (FCE), Targeting Element (TGTG), and the Division Tactical Operations Center Fire Support Element (DTAC FSE). Appendix A lists the positions in each of the elements which did participate. Two shifts of staff members went through training. The first shift trained on Days 1 and 3, the second on Day 2. But some staff members participated in both shifts.

Research Materials

SAMAAR tools: Package with introduction, self-assessment checklist for the staff element, flow chart showing inputs from and outputs to other staff elements, table listing inputs, outputs, and processes that link/convert inputs to outputs. These packages were compiled for each staff element from the set of materials shown in Appendix B.

Research tools

SAMAAR opinion questionnaire. A questionnaire was designed to assess the participants' reactions to the value and features of the SAMAAR approach and its tools (Appendix C). The questionnaire contained five items on value and five items on the features of the SAMAAR approach and tools. A six point response scale ranging from strongly agree to strongly disagree was included with each questionnaire item. The scale was patterned after one used by Mirabella, Sticha, and Morrison (1997). The survey form also provides space for comments.

Tape recorders. Tape recorders were brought to the test site to record the mini-AARs. We intended to content-analyze the recordings for problems with use of the self-assessment forms during the mini-AARs. These recordings were to supplement observations of the AARs by the research staff following a practice employed by Mirabella, Sticha, and Morrison (1997) in the MDT2 program. The tape recorders were not used for reasons indicated below.

Procedures

Orientation to SAMAAR. On the morning of Day 1 a series of orientation briefings were given to the entire DivArty staff by the ARL research staff. Included among the briefings was a short (approximately 5-minute) overview of and introduction by ARI to the SAMAAR approach.

Administration of self assessment checklists. On Days 1 and 2, sets of SAMAAR packages (Appendix B) were given to each of the DivArty staff element non-commissioned officers in charge (NCOICs). These were to be distributed to each member of each of the four staff elements. The assessment checklist in the package was to be completed at the end of the day (shift), prior to a mini-AARs. Checklists were not distributed on Day 3 because we learned that the exercise was to be terminated after a few hours and time for administering either the self-assessment checklists or the mini-AARs was not anticipated.

Mini-AARs. For administrative reasons beyond our control, the expected mini-AARs on Days 1 and 2 were not conducted. Consequently, we were able to apply only the first segment of the SAMAAR approach.

Administration of opinion survey on SAMAAR. The opinion survey (Appendix C) was administered on the morning of Day 3, as part of a larger administration of questionnaires by the ARL staff.

RESULTS

Opinions on Value and Features of SAMAAR

Responses to the evaluation questionnaire were received from 8 participants. A summary of responses to a reduced set of items is presented in Table 1. A number of the items on the original questionnaire dealt with mini-AARs, which never took place. As a result checklist responses to those items were considered uninterpretable. Table 1 lists the remaining items and their percentages of agreement ("Agree" to "Strongly Agree"). Positive reaction is uniformly high for value and features (75% to 100% agreement).

Table 1. Evaluation of SAMAAR

Evaluation Item	Agree
Need/value	
4. <i>A self-assessment package like this is not currently available to my unit</i>	100
5. <i>A self-assessment package like this or an improved version would be useful in future exercises</i>	88
Features	
6. <i>The instruction sheet was clear, well organized, and had about the right amount of information.</i>	75
7. <i>Assessment checklist items were useful as memory joggers and could be answered.</i>	88
10. <i>I felt that I could respond accurately to the self-assessment tools</i>	75

Comments from the questionnaires were compiled and organized from the entire original questionnaire. For developmental purposes, it was considered useful to examine all the comments. These are clustered, with annotations, under a set of categories derived from the original questionnaire. Included are positive and negative comments on the value of the mini-AAR methodology. Also included are constructive comments on technical aspects of the methodology. Each category of comment provides useful information and "lessons learned" for further research and development, and eventual implementation of the methodology.

Positive Comments

The positive comments indicate that the self-assessment approach can be useful and timely in surfacing training problems that might have otherwise been overlooked. It is also a way to ensure that all levels, enlisted personnel and officers, participate in improving the training, and that communication and coordination problems among cells not "fall through the cracks." This conclusion is based on the following comments:

"More detailed AAR package would be a great tool to help improve our performance."

"Although not a replacement for the formal AAR, the mini-AAR enhances training

through self-evaluation.”

“It is a good tool for leaders to look at the way they do things and make quick improvements.”

“If utilized correctly, the mini-AAR has value. It prompted me to look at areas I might have overlooked.”

“It made us aware of what to give a little more attention to as we went along.”

“It helped identify areas where improvement is needed as well as being able to coordinate with the other sections.”

“Gets input from all levels.”

“Have them at the end of the exercise.”

The positive comments suggest that in our future explanations and training we should point out that the mini-AAR can provide “just-in-time” remedial feedback -- feedback which is given at least at the end of each training day, in small enough groups, so that all members of a staff cell can contribute. A number of comments from an ARL survey indicate interest in having AARs several times a day (Linda Pierce, personal communication, February, 1998). One trainee in the ARL survey suggested AARs at the end of one-hour blocks, a second trainee suggested AARs at the end of four-hour blocks. We also need to point out that the mini-AAR can help to point up problems in inter-cell communication and coordination. These can then be worked out either informally among cells or as part of a larger AAR that brings the cells together.

An interesting observation by ARL personnel is that trainees often have incomplete or inaccurate information about the consequences of their actions and therefore may not be in a position to self-evaluate (Linda Pierce, personal communication, February, 1998). However, to the contrary, the mini-AAR process can counteract these inaccurate perceptions by allowing various points of view to surface during the cell mini-AAR meetings. If one cell member has limited or inaccurate perceptions, contrary opinions by other cell members can serve as “mid-course” corrections. The possibility still exists that all cell members may have inaccurate information about the consequences of their performance. Here is where other sources of information may be brought to bear: expectations vs. actual performance; the electronic data stream which records actual events; observations and judgments of O/Cs, where an O/C cadre is available; and finally the perspectives of senior leadership and training managers. The challenge here is how to incorporate these other sources into the “brainstorming” of the staff cells as they go through their mini-AARs.

Negative Comments

A number of comments question the need for and the value of the mini-AAR methodology under research investigation by ARI. The comments communicate the message that we shouldn't be trying to fix something that's not broken. They maintain that Army policy and practice on after action review is sufficient and requires no innovation. The comments further suggest that command leadership has the tools necessary to provide training feedback and requires no additional training tools or innovations.

"I don't feel we need a supplement to the guidelines given by the Army on how to conduct AARs."

"We rely on officer or NCO leadership to improve performance. We know our strengths and weaknesses w/o being prompted by a form."

"I think the sections are good at finding & fixing problems. We are always able to find problems with training. It's never hunky-dory."

"DivArty could easily develop one on their own. We conduct AARs after every training event, as the results are used to tailor future training."

"If leaders are focused then important areas won't be overlooked."

"I think that a leader-led AAR focused on the METL tasks and their training objectives is sufficient. Officers and NCOs can put comments on paper if necessary, but a long form is unnecessary and usually ineffective."

"N/A – Didn't see any noticeable improvement."

Some thoughtful comments and food for thought are provided above. There may be a communication problem here, a misunderstanding about what we're trying to achieve. The misunderstanding is not surprising, since we were not able to actually get the daily mini-AARs implemented. Trainees did not experience the complete feedback process. We are in fact trying to provide some tools to support cell leader-led AARs focused on the METL tasks and training objectives. Our checklist was derived from METL tasks and training objectives. We're also trying to develop a methodology to promote timely and frequent feedback -- at least daily if not more often, as suggested in comments from the ARL/NAWCTSD survey. The current AARs would be sufficient if, in fact, they were done in a systematic, persistent, and timely fashion. At the January Fort Hood DivArty exercises *there were no section AARs*. Whether this is the usual case, or was a special case because of the ARL research, we don't know. We do know from scientific research that training feedback is most effective when given close to where the training deficiencies occur. The methodology we are examining is designed to encourage more timely feedback as well as greater participation from all the players.

Some concern was expressed about the value of filling out "self-assessment" checklists. Again I think we didn't communicate our methodology adequately. We need to explain more effectively that we are developing and testing an assessment/feedback system, with the checklist as a component of the system. The purpose of the checklist is to give the staff cell participants a chance to document their own perspectives and judgments about training effectiveness and problems, and then use the checklists to contribute when the cell convenes for the actual mini-AAR. The checklist is designed to extract maximal benefit from each participant's training experience. We agree with the concerns about excessive paper work. We're trying to keep the paper work to a minimum. A research goal is to design short, simple forms that get the job done.

Finally, the view was expressed that trainees and their leaders are fully capable of identifying and fixing training problems with current SOP and capabilities. We don't doubt this in the least. In fact those capabilities provide a key premise underlying the prototype self-assessment/mini-AAR methodology. It is because the trainees "know" their "strengths and weaknesses" that the self-assessment/mini-AAR can add value to the training. The methodology allows each member of the cell to document his or her views of training problems and helps bring out differences of opinion for constructive discussion when the cell meets.

Our preliminary data show frequent same-task disagreements ranging from "needs improvement" to "commendable." So, not everyone in the cell will see strengths and weaknesses in the same way. Psychological theory indicates that well qualified personnel observing the same events may focus on different aspects of those events and arrive at different conclusions. The value of our methodology is that it encourages discussion to discover and reconcile the different perceptions and cognitive conclusions. It is a mechanism for approaching ground truth and providing feedback based on that truth.

Constructive Critiques-General

Though few in number, a set of comments surfaced some interesting methodological problems that we need to attend to: (1) carefully tailoring the self assessment checklists to the needs of specific staff cells; (2) considering the roll of other information sources such as the major sequence event list (MSEL), and information from O/Cs; (3) AAR facilities, i.e., the logistics of implementing AARs; and (4) providing adequate training in the use of the methodology. These issues were suggested by the following comments:

"The self-assessments should be tailored more towards battle operations than the orders process."

"It dealt more with planning than execution."

"Must be aligned with duty position."

"There was no section AAR conducted. If each section was given a copy of the MEL which affected their section, they could have a good AAR."

“Use desks, not chairs, separate officers and enlisted. Give the soldiers an accurate understanding of what they are to do.”

The first two comments above are from the Fire Support Element (FSE) and merit special discussion. The comments show a concern about tasks that FSE personnel didn't think they were supposed to do. The Fire Support Element (FSE) self-assessment tool was designed for both the FSE at the DMAIN location (involved with planning/orders preparation) and the FSE at the DTAC location (involved with current battle execution). Since the exercise at Fort Hood played the FSE only at the DTAC, the comments referenced above are understandable. For future exercises, the FSE self-assessment tool could be written in two versions: one for FSE at DMAIN and one for FSE at DTAC. The broader lesson learned is that resources must be allocated and arrangements made to staff the self-assessment materials with the types of personnel who will be asked to use them.

The comment referencing the MEL (Major Event List) raises an interesting question. Would it be useful to work the MEL into the mini-AAR/self assessment process and how would it be best to do so? Our self-assessment checklists are task and training objectives oriented, rather than event-sequenced like the MEL. How can we combine the two? Maybe the cell can begin with the larger task judgments and then go to the MEL to get specific examples of problems. Is there some way to “job-aid” this linkage? ARL/NAWCTSD tried to get a cross-walk between the MEL (i.e., TRACE) and more generic judgments (TRACT) and didn't seem to have much luck doing so. But it might be easier to link MEL events with the process and product statements in the self-assessment forms.

The last comment above raises three issues: (1) logistics of administering the self-assessment/mini-AAR; (2) composition of the mini-AAR group; and (3) orientation and training in the purposes and procedures of the self-assessment/mini-AAR. We need to try to arrange things more comfortably and make it easier for the troops to carry out the various parts of the self-assessment/mini-AAR process. Desks may not be feasible, especially in field environments, but maybe a table can be set up, or at the very least, clip boards provided as minimal writing surfaces.

Regarding the separation of officers and enlisted personnel, arguments exist on both sides. Enlisted personnel may be intimidated by officers. On the other hand, if they are separated, each segment will not have the benefit of the other segments viewpoints. The value of diversity of perspectives and ideas is a key premise of the self-assessment/mini-AAR process.

The final clause in the last comment is especially important. In future tests and applications, significant time and effort should be expended to explain the self-assessment/mini-AAR methodology. A cursory, five-minute overview isn't going to get the job done. This is a bit tricky. We don't want to burden the players with additional training requirements, but we have to insure that “the soldiers [have] an accurate understanding of what they are to do.”

Constructive Comments on the Self-Assessment Package -- Instructions and Self-Assessment Checklist

This package included an instruction sheet, a self-assessment checklist, and several job aids: a flow chart showing inputs and outputs from each cell to every other cell and a table describing inputs, related processes, and outputs for each staff cell. Survey responses and comments indicated that the instruction sheet and the self-assessment checklist were positively received. One respondent, however, did indicate that he was *unaware* of an instruction sheet. His comment reinforces the need to take greater care and expend more effort in explaining the self-assessment package.

“Very concise.” [Instruction Sheet]

“What instruction sheet?”

“They [Self-Assessment Checklist] were good reminders.”

“I got an extra one [Self-Assessment Checklist].”

Constructive Comments on the Self-Assessment Package -- Job Aids

The comments below indicate a range of opinions on the usefulness of the job aids. The tables and flow charts we provided may be more useful as training materials, than as AAR guides. But without having observed mini-AARs, we don't know how they might have been used during the discussions. Cross-references from the checklist to the job aids may increase the usefulness of the job aids during the mini-AAR.

“Couldn't see relevance of flow chart to AAR.”

“They [flow charts] provided good details.”

“My section is very talkative.”

“They [table of processes] served as a useful or useful guides.”

“I know how to do an AAR.”

Assessment Checklist Data

Table 2 summarizes responses filled out on assessment checklists by members of three staff cells, on the first two days of a three-day Division Artillery Staff Training exercise. A different shift of personnel participated each day, but a few people participated on both days.

Table 2. Percent of "Needs Improvement" Responses

Day	Staff Element	Percent "Opportunity for Improvement"	
		Product	Process
1	Fire Support Element (FSE) [3]	50% (12/24)	30% (16/54)
2	Fire Support Element [5]	40% (16/40)	49% (44/90)
1	Fire Control Element (FCE) [4]	4% (1/24)	16% (12/77)
2	Fire Control Element [3]	11% (2/18)	28% (15/54)
1	Operations (OPS) [7]	29% (7/24)	44% (65/148)
2	Operations [5]	10% (2/20)	11% (11/104)

[] = number of staff cell members who completed the checklist

The numbers of personnel responding to the checklists are given in square brackets under "Staff Element." The data under "Product" and "Process" reflect percentages of "Opportunity for Improvement" responses. The baseline for the percentages includes responses to all the checklist response categories.

Sensitivity to Training Problems. Note in Table 2 the large numbers and percentages of processes and products across cells and days judged to be in need of improvement. These quantities underscore the potential value of the players as data sources and the related value of the self-assessment scales for extracting that data. That is, the self-assessment instrument appears to be sensitive to perceived training deficiencies.

Trend Analysis and Comparisons. It is not meaningful to do trend analysis or comparison with the current data because too many confounding variables were operating across days. For example, different shifts, with different S3s participated on Days 1 and 2, though some personnel did participate on both days. And the need to accommodate a test of a new simulation facility added its own complications, not normally present in scheduled training events for division artillery staff. Finally, the reliability and validity of the checklist itself are unknown.

But the results illustrate how the checklist data might be used to do a "temperature check" of training progress across days and across staff cell elements under more controlled, comparable conditions. By extension these same analyses might be used for comparing alternative training systems. Imagine then that the checklist data were obtained under circumstances that justified meaningful comparisons across days and staff cell elements. What might the data tell us?

a. Process and product measures appear to co-vary. A non-significant chi-square test for product vs. process across days and staff elements supports this.

b. The OPS cell “judged” itself much in need of improvement at the end of Day 1, but “made substantial progress” by the end of Day 2.

c. The FSE “experienced” a large (the largest) proportion of perceived training deficiencies overall.

d. The FCE “reported” the smallest amount of training deficiency, especially for the “Product” measure, but relatively more training deficiencies on Day 2 than on Day 1.

Again, it needs to be emphasized that the above comments are a hypothetical illustration of how self-assessment data might be summarized and used to get a “temperature check” on training progress and needs. The comments are not intended to characterize the staff that participated in the training event.

DISCUSSION

Evaluation of SAMAAR

Value/Need. The survey results indicate the value of and the need for a self-assessment approach as a timely and feasible way to support training feedback. Reactions to the checklist generally were favorable. A few negative reactions were aimed at use of the checklist in isolation of a mini-AAR. But since mini-AARs were not carried out, the purpose of the checklist as a precursor to the mini-AAR was perhaps not understood. Some participants did question the need to fix something that "wasn't broken." Their reactions suggested that a clearer explanation of the SAMAAR approach needs to be included in future trial applications.

Job Aids. Reactions to the job aids included in the self-assessment package were mixed. Some respondents felt that the flow chart and input-process-output table were useful; others did not. The role of such aids needs further thought and evaluation. Perhaps we need to find a more explicit way to link these job aids to the checklist and mini-AAR and then explain how to use them. Cross-references from checklist items to specific sections of the job aids might be useful. If so we need to create the references and then explain their use during the orientation phase of the test bed exercise. If we were to distribute similar job aids in follow-up joint training research, we should do so as part of the pre-exercise orientation and then assess their utility for both exercise preparation and as an aid in the SAMAAR process.

Self-Assessment Checklist Data

The checklist data and evaluation results indicated that the checklist was easy to complete and sensitive to training problems. Comments and checklist responses from the FSE cell did indicate that many of its items were not well tailored to its role in this particular exercise, *e.g.*, "The self assessments should be tailored more towards battle operations than the orders process." "It dealt more with planning than execution." But these results only underscore the importance of very careful staffing of the checklist with its target population and the need for a capability to make revisions in checklist items "at the last minute."

In the Results Section we presented summaries of checklist responses across trainees within staff cells and days. The purpose for presenting these summaries was to illustrate how such data might be used to do trend analyses of training progress across days and comparisons of training progress among staff cells under appropriately standardized conditions. Appropriate conditions for trend analysis and comparisons did not exist here. There were too many artificial and confounding factors. For example, the exercise was a test bed for evaluating a stimulator-simulator, normally used for operational training. Its unconventional use resulted in technical problems that delayed or interrupted the exercises several times. But under appropriate conditions the checklist data might be useful in helping to monitor training progress. They might also provide a mechanism to "red tag" recurring, persistent training problems across rotations, problems that may benefit from special attention. This latter use, however, may be problematic if exercise scenarios are not standardized.

Implementation Shortfalls

The trial implementation of SAMAAR fell short of expectations. The shortfalls were, in part, the result of limited control of scheduling the SAMAAR events and administration of research materials. For example, in the interest of “non-interference” the checklist forms were given to staff personnel for distribution to and collection from staff cell members. A number of consequences resulted. Completed checklist forms were received from only three of the four staff elements. Heading information, *e.g.*, date, time, cell, duty position was missing on many otherwise completed forms. Only eight participants filled out SAMAAR evaluation forms. Most significant, mini-AARs that were anticipated at the end of each of the three mission days did not occur. But the shortfalls did provide constructive “lessons-learned” for follow on research.

To be worth the effort, future SAMAAR trial applications need to be conducted under a direct, pre-arranged understanding of research requirements and agreement of support by the host unit. Such research can still be carried out on a relatively non-interfering basis. However, it’s essential to maintain a roster of participants in order to track application of SAMAAR and other research materials. It would still be possible to keep completed forms anonymous, if desired.

Future enhancements of the SAMAAR approach could include assessment of cell performance by those receiving cell outputs. A research application might include assessments by observer/trainers (O/Ts). A comparison of their assessments with those of the trainees could provide a basis for validity and reliability analyses. Figure 1 outlines these enhancements (Guy Siebold, personal communication, February 1998). In addition the role of electronic data from digital force training exercises needs to be examined for its usefulness in assessing the training of mission planning and management.

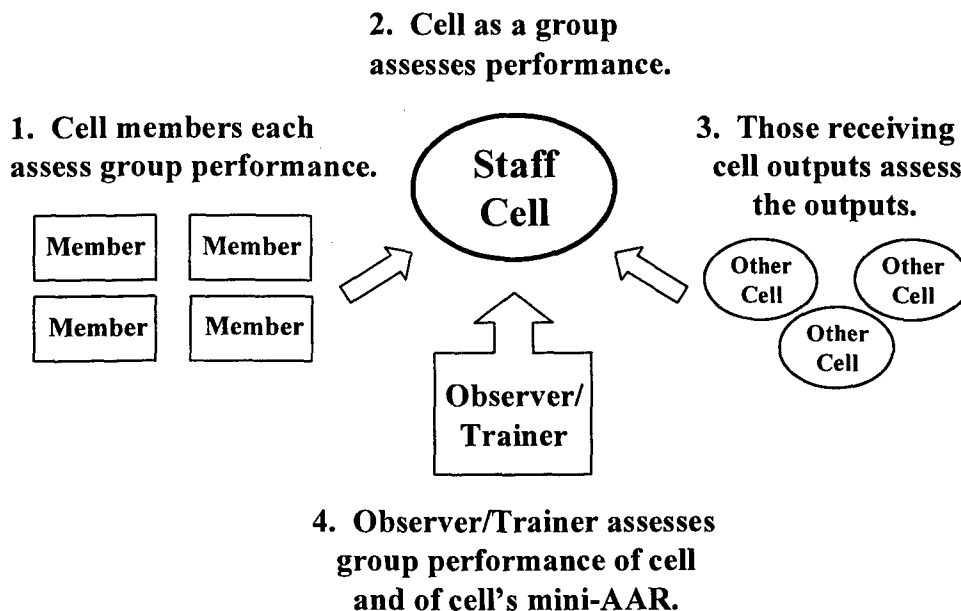


Figure 1. Future enhancement of the SAMAAR approach.

CONCLUSIONS

1. The SAMAAAR approach was judged to be useful and timely for providing feedback and surfacing training problems that otherwise might be overlooked.
2. The self-assessment checklist was judged to be clear and easy to complete.
3. The checklist data under standardized conditions can provide a way to track training progress across unit elements and mission days
4. The value and appropriate use of the job aids, task flow charts and tables, are inconclusive. They require further development and test.

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APPENDIX A
TARGET AUDIENCE FOR SELF-ASSESSMENT PILOT TEST

OPERATIONS (OPS)	RANK	NOTES
Operations Officer (S-3)	MAJ	
Counter fire Officer	CPT	
Operations Sgt	SGM	
Chemical Officer	CPT	
Clerk/RTO	SPC	
Reconnaissance Survey Officer	CPT	
Surveyor	SFC	
FIRE CONTROL ELEMENT (FCE)	RANK	NOTES
Fire Control Officer	CPT	
Fire Control NCO	SFC	
Computer Operator	SSG	
Tacfire Equipment Spec	PFC	
Tacfire Equipment Spec	PFC	
Tacfire Equipment Spec	PFC	
TARGETING ELEMENT (TGTG)	RANK	NOTES
Intel Officer	CPT	
Processing Chief	SSG	
Target Processing NCO	SGT	
Target Processing Spec	PFC	
Target Processing Spec	SPC	
Intel SGT (NCOIC)	MSG	
Intel Analyst	SSG	
Intel Analyst	SGT	
Intel Analyst	PFC	
DTAC FIRE SUPPORT ELEMENT (FSE)	RANK	NOTES
Assistant FS Coordinator	CPT	
Fire Support SGT	SFC	
Fire Support NCO	SGT	
Clerk	SPC	
Fire Support Specialist	SPC	

APPENDIX B
COMPONENTS OF THE SELF-ASSESSMENT PACKAGE

<u>Package</u>	<u>Page</u>
Background and Purpose of Tools	B-2
Operations Section	B-OPS-1
Fire Control Element	B-FCE-1
Targeting Section	B-TGT-1
DTAC Fire Support Element	B-FSE-1

Self-Assessment Tools for Division Artillery Staff Sections

1. **Background.** U.S. Army Research Institute (ARI) has been developing a concept for measuring performance during training of high-level (Joint Task Force and above) joint staffs. For staff sections at these levels, it is difficult to obtain outside observer/controllers to provide meaningful feedback during the training of these sections. ARI's basic premise is that staff sections possess the expertise to assess their own performance, and that if provided the proper self-assessment tools, they can conduct effective mini-AARs to improve their training. This concept was tested during a major CINCCENT exercise in 1997, with very favorable results.

2. **Purpose.** ARI would like to try out a set of self-assessment tools developed for use by the key staff sections involved with the fire support operations of a division artillery. This is completely voluntary on the part of the unit.

a. Enclosed are four sets of tools each with an introduction to the self-assessment tools themselves, instructions for their use, and diagrams of inputs, outputs, and processes. There is a set for the operations section, the targeting section, the fire control element, and the fire support element. Many of the functions these sections perform are process oriented, as opposed to outcome oriented. To perform the processes involves, to a large degree, the performance of military "art" based on collective judgment. This is something difficult to measure *objectively*. It was, therefore, necessary to derive mainly *subjective* performance measurement tools.

b. The self-assessment tools are for the use of the senior officer in charge of each staff section to conduct a 10-15 minute mini-AAR (after action review) at the conclusion of each iteration or phase of the section's fire support processes. This allows him to give and receive feedback on how well the process was performed and on what needs to be fixed or improved for the next iteration. The self-assessment tools are in the form of questions to ask oneself and the section members. Their purpose is to:

- 1) Provide a reminder and a format to conduct on-going, semi-structured reviews of what's being done, for what purpose, and how well it's being done.
- 2) Provide a record of performance progress throughout the duration of a training exercise or during actual combat.
- 3) Provide a record of lessons learned and critical events for inclusion into the overall DivArty AAR.
- 4) Identify tasks which require additional training or need added emphasis in future iterations of the process being performed and in future training exercises.

3. At the conclusion of the training exercise, ARI would like to receive feedback from the staff sections on the self-assessment process in general and on the individual tools in particular.

**Training Objective Self-Assessment Tools for
Division Artillery Operations Section
Mini-AARs**

1. **Training Objective.** Train the Operations Section in planning and controlling the employment of FA unit operations. Major tasks involved are:

- a. Prepare the FA support plan.
- b. Direct and coordinate FA unit operations.
- c. Plan employment of FA assets.
- d. Collect and manage FA tactical information.

2. **Self-Assessment and Feedback (Background/Purpose).**

a. One of the major challenges to assessing training performance and giving meaningful feedback is finding the right people with the right expertise to conduct the assessment. At lower echelons, those personnel can be found in like units or in higher echelon units and can be tasked to perform assessment and feedback for other units' training. But for a division, it is often times impractical to task like or higher units outside of the division for personnel. Additionally, during actual combat or for training at times other than during a major exercise, expert observers/controllers/trainers will not be present to provide the necessary feedback for improvement. So where does one find the required expertise? It can be found within the unit's own staff personnel. Therefore, the training performance measures and feedback methods contained in this guide were designed for **self**-assessment by personnel in those division artillery staff elements involved with fire support operations.

b. Many of the tasks performed by DivArty staff elements in fire support operations are process oriented, as opposed to outcome oriented (see page OPS-7). To perform the processes involves, to a large degree, the performance of military "art" based on collective judgment. This is something difficult to measure *objectively*. It was, therefore, necessary to derive mainly *subjective* performance measurement tools.

c. The Self-Assessment Tools are to be used by the senior officer in charge of each shift of the operations section to conduct a 10-15 minute mini-AAR (after action review) for his shift at the conclusion of each iteration or phase of its fire support processes. This allows him to give and receive feedback on how well the process was performed and on what needs to be fixed or improved for the next iteration. The Self-Assessment Tools:

- 1) Provide a reminder and a format to conduct on-going, semi-structured reviews of what's being done, for what purpose, and how well it's being done.
- 2) Provide a record of performance progress throughout the duration of a training exercise or during actual combat.

- 3) Provide a record of lessons learned for inclusion into the overall DivArty AAR.
- 4) Identify tasks which require additional training or need added emphasis in future iterations of the process being performed and in future training exercises.

3. **Instructions.** The attached Self-Assessment Tool (pages OPS-3 and OPS-4) for the operations section (OPS) is in the form of questions for the senior officer in charge of each OPS shift to ask himself and the members of his shift while conducting a mini-AAR prior to the conclusion of each shift or after a major process has been accomplished. Pages OPS-5 and OPS-6 are provided as a ready reference and show input/output flow for the DivArty as a whole and for the OPS section in particular.

- 1) The date/time and person conducting the mini-AAR should be filled in, so that a record of progress can be maintained, and any future questions can be directed to the appropriate person.
- 2) Any of the "Products/Outputs" which were developed should be rated as to how effective they are.
- 3) Each of the questions under "Assessment of Processes" should be discussed and rated. Any examples of significant or critical events arising from these discussions should be written in the "Comments" section on the back or attached on separate sheets.
- 4) Lessons learned, fixes to problems, or other relevant information discovered during the mini-AAR should be addressed with the on-coming shift.

DivArty OPS Section

Date, Time, Prepared by:

Self-Assessment Checklist

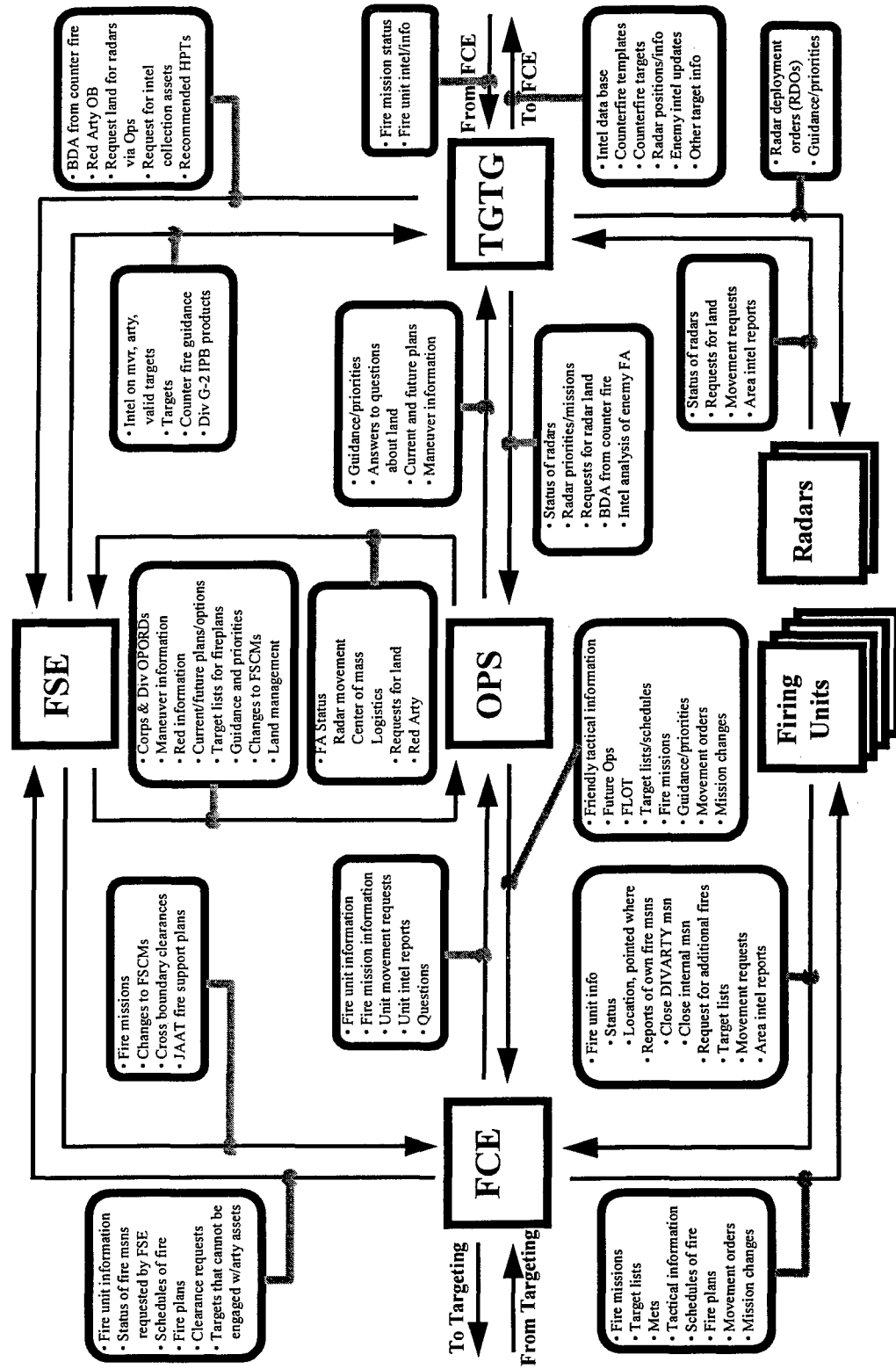
	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Products/Outputs				
Field Artillery Support Plan				
DivArty commander's guidance				
Movement orders				
Mission changes				
Assessment of Processes				
How well were FA assets allocated and prioritized?				
Were changes in allocation projected over time IAW div OPORD?				
Were instructions for timely detection/attack of HPTs given?				
Were requirements for positioning of all FA assets determined?				
Were make-up of basic loads & the RSR determined?				
Were locations of ASPs and ATPs disseminated?				
Were cmdr's attack guidance & tgt select stnd determined?				
Was effective control of fire control operations maintained?				
How well was the coordination of target acquisition directed?				
How well were the planning and execution of survey conducted?				
How well was the movement of units managed?				
Was DivArty cmdr kept informed and guidance sought from him?				
How effective was commo w/higher, lower, and adjacent units?				

**DivArty OPS Section
(Continued)**

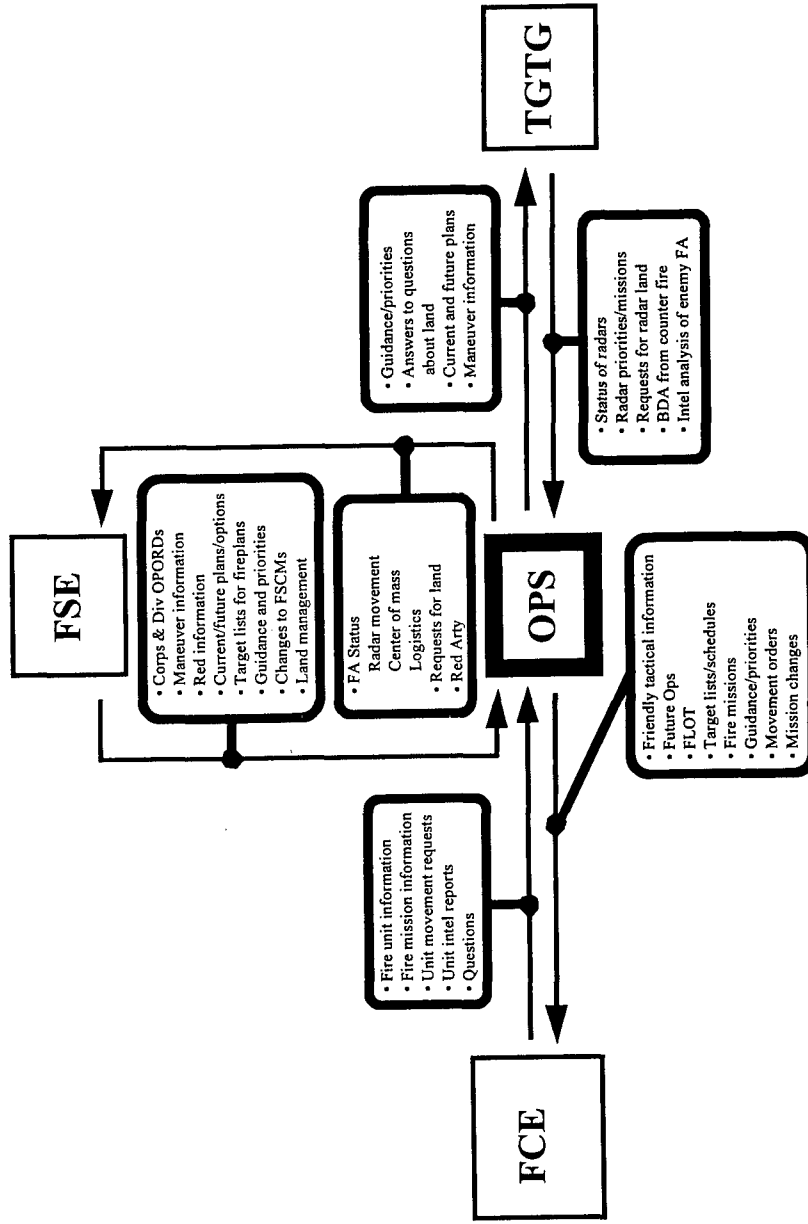
	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Processes (Continued)				
How well were appropriate inputs and documents used?				
Were appropriate personnel (external/internal) consulted?				
How well did key personnel provide relevant input?				
Were doctrinal principles and cmdr's philosophies adhered to?				
Were matters sufficiently discussed? Alternatives addressed?				
Was each output consistent with cmdr's guidance/intent?				
Were outputs produced and distributed in a timely manner?				
Was a "mini-AAR" conducted w/in the S-3 Ops after each activity?				

Comments (fixes/lessons learned/critical incidents/examples):

Input/Output Flow Among DivArty Elements



Input/Output Flow Among DivArty Elements Operations (OPS)



DivArty OPS Section

Inputs: <ul style="list-style-type: none">- Div OPORD- FSE rpts- DivArty Cmdr's Guidance	Process: Prepare the Field Artillery Support Plan <ol style="list-style-type: none">1. Allocate and prioritize FA assets.2. Project changes in the allocation of FA assets on the basis of tactical contingencies in the OPORD.3. Coordinate and synchronize instruction for the timely detection and attack of HPTs.4. Determine requirements for positioning assets, the make-up of basic loads, the RSR, locations of ASPs and ATPs, and required damage to enemy targets.5. Establish restrictions on ammunition expenditures, types of fires, areas of employment, and creation of obstacles to limit risk to friendly troops and to minimize loss of civilian life.6. Coordinate permissive and restrictive FSCMs.7. Establish special instructions on rules of engagement, fire support communications, logistics support, and location of CPs.8. Determine commander's attack guidance, target select standard, HPTL, and BDA requirements.	Output/Product: <ul style="list-style-type: none">- FA Support Plan
Inputs: <ul style="list-style-type: none">- OPORD- Subordinate units' rpts- FSE rpts	Process: Manage the Operations of the TOC <ol style="list-style-type: none">1. Maintain effective control of fire support and fire control operations.2. Manage the operations element, the fire control element, and targeting element to ensure effective integration of information into fire planning and operations.3. Establish continuous TOC facilities for the division artillery.4. Coordinate and direct the attack of targets developed by the targeting element with special consideration to counterfire targets.5. Plan, direct, coordinate, and control the fires of organic, attached, and reinforcing field artillery units.6. Coordinate and direct target acquisition and survey operations.	Output/Product: <ul style="list-style-type: none">- Info dissemination- Changes to FA Support Plan- DivArty Cmdr's guidance- Fire missions- Movement orders- Mission changes

**Training Objective Self-Assessment Tools for
Division Artillery Fire Control Element
Mini-AARs**

1. **Training Objective.** Train the FCE Section in providing timely, accurate, and effective technical fire solutions and tactical fire control of FA fires. Major tasks involved are:

- a. Control and coordinate FA fire missions.
- b. Prepare schedules of fire.
- c. Control target attack.
- d. Provide counterfire.
- e. Perform and provide target value analysis.

2. **Self-Assessment and Feedback (Background/Purpose).**

a. One of the major challenges to assessing training performance and giving meaningful feedback is finding the right people with the right expertise to conduct the assessment. At lower echelons, those personnel can be found in like units or in higher echelon units and can be tasked to perform assessment and feedback for other units' training. But for a division, it is often times impractical to task like or higher units outside of the division for personnel. Additionally, during actual combat or for training at times other than during a major joint exercise, expert observers/controllers/trainers will not be present to provide the necessary feedback for improvement. So where does one find the required expertise? It can be found within the unit's own staff personnel. Therefore, the training performance measures and feedback methods contained in this guide were designed for **self**-assessment by personnel in those division artillery staff elements involved with fire support operations.

b. Many of the tasks performed by DivArty staff elements in fire support operations are process oriented, as opposed to outcome oriented (see page FCE-7). To perform the processes involves, to a large degree, the performance of military "art" based on collective judgment. This is something difficult to measure *objectively*. It was, therefore, necessary to derive mainly *subjective* performance measurement tools.

c. The Self-Assessment Tools are to be used by the senior officer in charge of each FCE shift to conduct a 10-15 minute mini-AAR (after action review) for his shift at the conclusion of each iteration or phase of its fire support processes. This allows him to give and receive feedback on how well the process was performed and on what needs to be fixed or improved for the next iteration. The Self-Assessment Tools:

- 1) Provide a reminder and a format to conduct on-going, semi-structured reviews of what's being done, for what purpose, and how well it's being done.

- 2) Provide a record of performance progress throughout the duration of a training exercise or during actual combat.
- 3) Provide a record of lessons learned for inclusion into the overall DivArty AAR.
- 4) Identify tasks which require additional training or need added emphasis in future iterations of the process being performed and in future training exercises.

3. **Instructions.** The attached Self-Assessment Tool (pages FCE-3 and FCE-4) for the fire control element (FCE) is in the form of questions for the senior officer in charge of each FCE shift to ask himself and the members of his shift while conducting a mini-AAR prior to the conclusion of each shift or after a major process has been accomplished. Pages FCE-5 and FCE-6 are provided as a ready reference and show input/output flow for the DivArty as a whole and for the FCE section in particular.

- 1) The date/time and person conducting the mini-AAR should be filled in, so that a record of progress can be maintained, and any future questions can be directed to the appropriate person.
- 2) Any of the "Products/Outputs" which were developed should be rated as to how effective they are.
- 3) Each of the questions under "Assessment of Processes" should be discussed and rated. Any examples of significant or critical events arising from these discussions should be written in the "Comments" section on the back or attached on separate sheets.
- 4) Lessons learned, fixes to problems, or other relevant information discovered during the mini-AAR should be addressed with the on-coming shift.

DivArty Fire Control Element (FCE)

Date, Time, Prepared by:

Self-Assessment Checklist

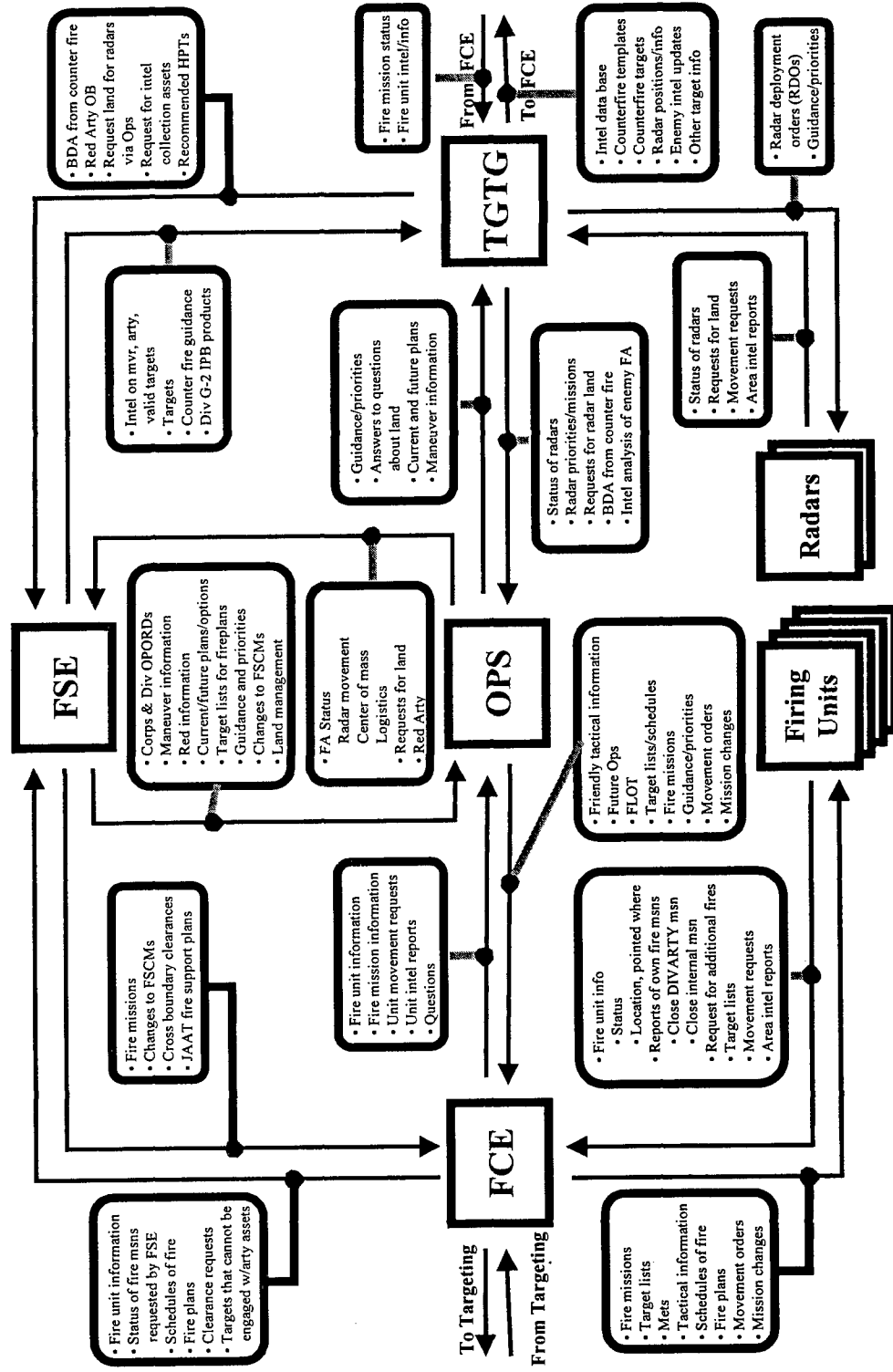
	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Products/Outputs				
Schedules of fire				
Target lists				
Fire plans				
Requests for clearance of fires				
Nominations of targets to be engaged by non-DivArty assets				
Fire missions				
Assessment of Processes				
Were fire msns, tgt lists, & schedules sent to appropriate units?				
Were tgts which could not be engaged passed to FSE?				
Were fires coordinated with adjacent units?				
Were ammo files updated upon completion of fire msns?				
Were clearances requested from FSE when necessary?				
Were JAAT fire support msns coordinated w/FSE?				
Was fire unit status monitored, updated, and disseminated?				
Was FLOT continuously updated?				
Were fire msn tactical solutions disseminated to appropriate units?				
Were counterfire templates input to counterfire schedules?				
Were requests for EW, CAS, and NGF support passed to FSE?				
Were reinforcing/attached FA brigades kept informed/updated?				

**DivArty Fire Control Element (FCE)
(Continued)**

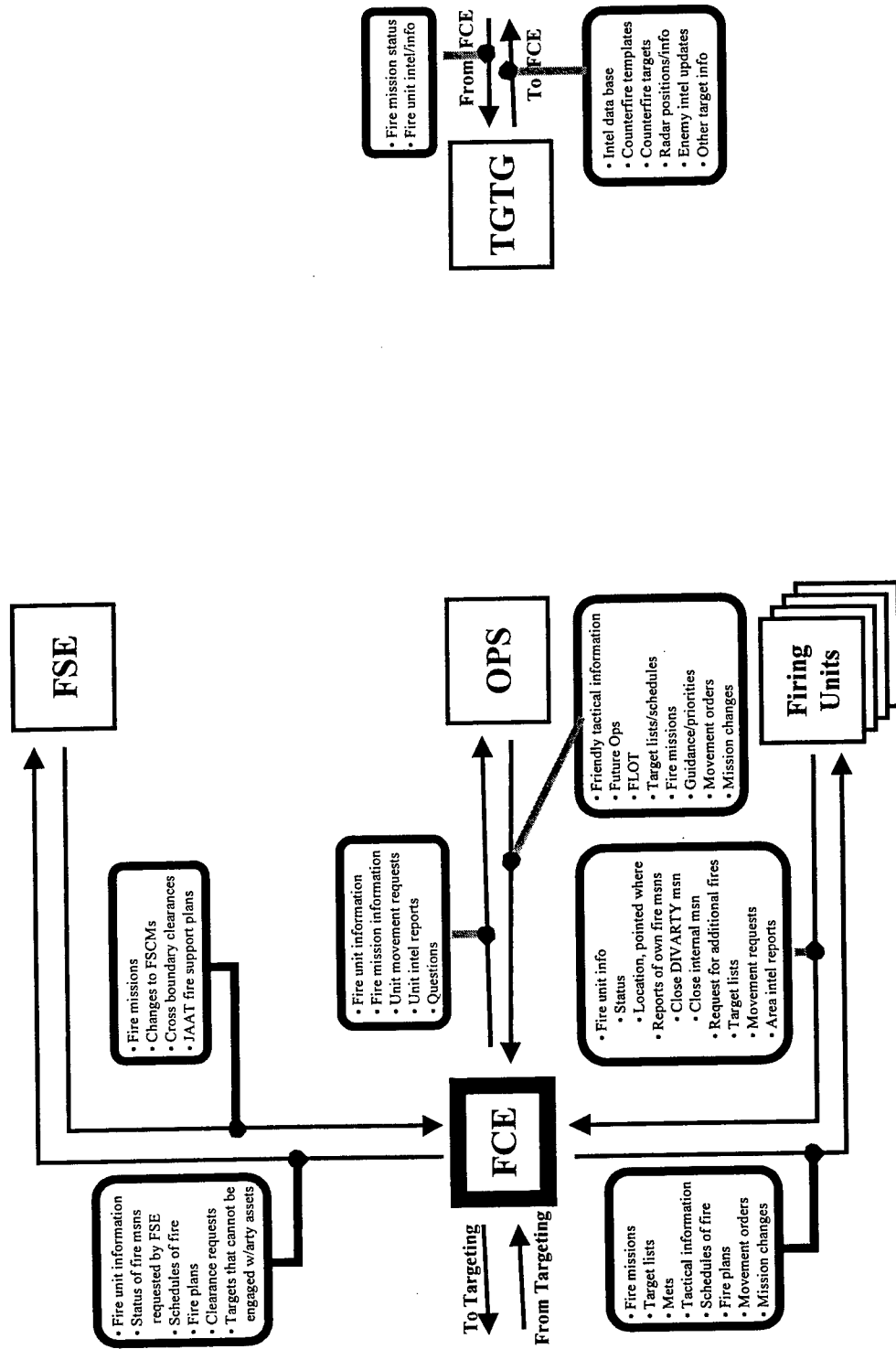
	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Processes (Continued)				
How well were appropriate inputs and documents used?				
Were appropriate personnel (external/internal) consulted?				
How well did key personnel provide relevant input?				
Were doctrinal principles and cmdr's philosophies adhered to?				
Were matters sufficiently discussed? Alternatives addressed?				
Was each output consistent with cmdr's guidance/intent?				
Were outputs produced and distributed in a timely manner?				
Was a "mini-AAR" conducted w/in the FCE after each activity?				

Comments (fixes/lessons learned/critical incidents/examples):

Input/Output Flow Among DivArty Elements



Input/Output Flow Among DivArty Elements Fire Control Element (FCE)



FCE-6

DivArty Fire Control Element (FCE)

Inputs: Process: Control and Coordinate Field Artillery Fire Missions **Output/Product:**

- Div OPORD
- FSE rpts
- Clearances

1. Review, approve, disapprove, or alter and disseminate fire mission tactical solutions to appropriate elements.
2. Disseminate fire requests, target lists, and schedules to appropriate elements.
3. Pass to FSE targets that cannot be engaged with organic or attached assets.
4. Coordinates fires with adjacent units.
5. Updates artillery ammunition files after fire mission completions.
6. Controls, coordinates and synchronizes with maneuver the following division level missions: adjust fire, fire for effect, time on target, joint air attack team missions, and schedules of fire.

- Schedules of Fire
- Target Lists
- Fire Plans
- Clearance request
- Targets for FSE to have engaged by other means
- Fire missions

**Training Objective Self-Assessment Tools for
Division Artillery Targeting Section
Mini-AARs**

1. **Training Objective.** Train the Targeting Section in how to accomplish the decide-detect-deliver-assess process. Major tasks involved are:

- a. Conduct intelligence preparation of the battlefield.
- b. Develop targets and potential targets.
- c. Predict and produce targets.
- d. Coordinate target acquisition and counterfire.

2. **Self-Assessment and Feedback (Background/Purpose).**

a. One of the major challenges to assessing training performance and giving meaningful feedback is finding the right people with the right expertise to conduct the assessment. At lower echelons, those personnel can be found in like units or in higher echelon units and can be tasked to perform assessment and feedback for other units' training. But for a division, it is often times impractical to task like or higher units outside of the division for personnel. Additionally, during actual combat or for training at times other than during a major joint exercise, expert observers/controllers/trainers will not be present to provide the necessary feedback for improvement. So where does one find the required expertise? It can be found within the unit's own staff personnel. Therefore, the training performance measures and feedback methods contained in this guide were designed for **self**-assessment by personnel in those division artillery staff elements involved with fire support operations.

b. Many of the tasks performed by DivArty staff elements in fire support operations are process oriented, as opposed to outcome oriented (see page TGT-7). To perform the processes involves, to a large degree, the performance of military "art" based on collective judgment. This is something difficult to measure *objectively*. It was, therefore, necessary to derive mainly *subjective* performance measurement tools.

c. The Self-Assessment Tools are to be used by the senior officer in charge of each shift of the targeting section to conduct a 10-15 minute mini-AAR (after action review) for his shift at the conclusion of each iteration or phase of its fire support processes. This allows him to give and receive feedback on how well the process was performed and on what needs to be fixed or improved for the next iteration. The Self-Assessment Tools:

- 1) Provide a reminder and a format to conduct on-going, semi-structured reviews of what's being done, for what purpose, and how well it's being done.
- 2) Provide a record of performance progress throughout the duration of a training exercise or during actual combat.

- 3) Provide a record of lessons learned for inclusion into the overall DivArty AAR.
- 4) Identify tasks which require additional training or need added emphasis in future iterations of the process being performed and in future training exercises.

3. **Instructions.** The attached Self-Assessment Tool (pages TGT-3 and TGT-4) for the targeting section (TGT) is in the form of questions for the senior officer in charge of each TGT shift to ask himself and the members of his shift while conducting a mini-AAR prior to the conclusion of each shift or after a major process has been accomplished. Pages TGT-5 and TGT-6 are provided as a ready reference and show input/output flow for the DivArty as a whole and for the TGT section in particular.

- 1) The date/time and person conducting the mini-AAR should be filled in, so that a record of progress can be maintained, and any future questions can be directed to the appropriate person.
- 2) Any of the "Products/Outputs" which were developed should be rated as to how effective they are.
- 3) Each of the questions under "Assessment of Processes" should be discussed and rated. Any examples of significant or critical events arising from these discussions should be written in the "Comments" section on the back or attached on separate sheets.
- 4) Lessons learned, fixes to problems, or other relevant information discovered during the mini-AAR should be addressed with the on-coming shift.

DivArty Targeting Section

Date, Time, Prepared by:

Self-Assessment Checklist

Assessment of Products/Outputs				
Counterfire templates				
Intel data base				
High Value Targets (HVTs)				
Critical nodes				
NAIs & TAls				
Intel estimates/annex				
Target acquisition missions				
Radar Deployment Orders (RDO)				
Requests for additional intel collection assets				
Assessment of Processes				
How well were critical nodes, NAIs, TAls, & HVTs identified?				
Were G2 & FSE consulted during FA IPB process?				
How effective was development of targets and potential targets?				
Were positioning and relocation of TA assets recommended to S3?				
Did target value analysis determine high value targets (HVTs)?				
Were high payoff targets (HPTs) recommended to S3 and FSE?				
Were radar deployment orders effectively prepared?				
Were counterfire templates prepared and passed to FCE?				
Was BDA requested and BDA analysis conducted for enemy FA?				

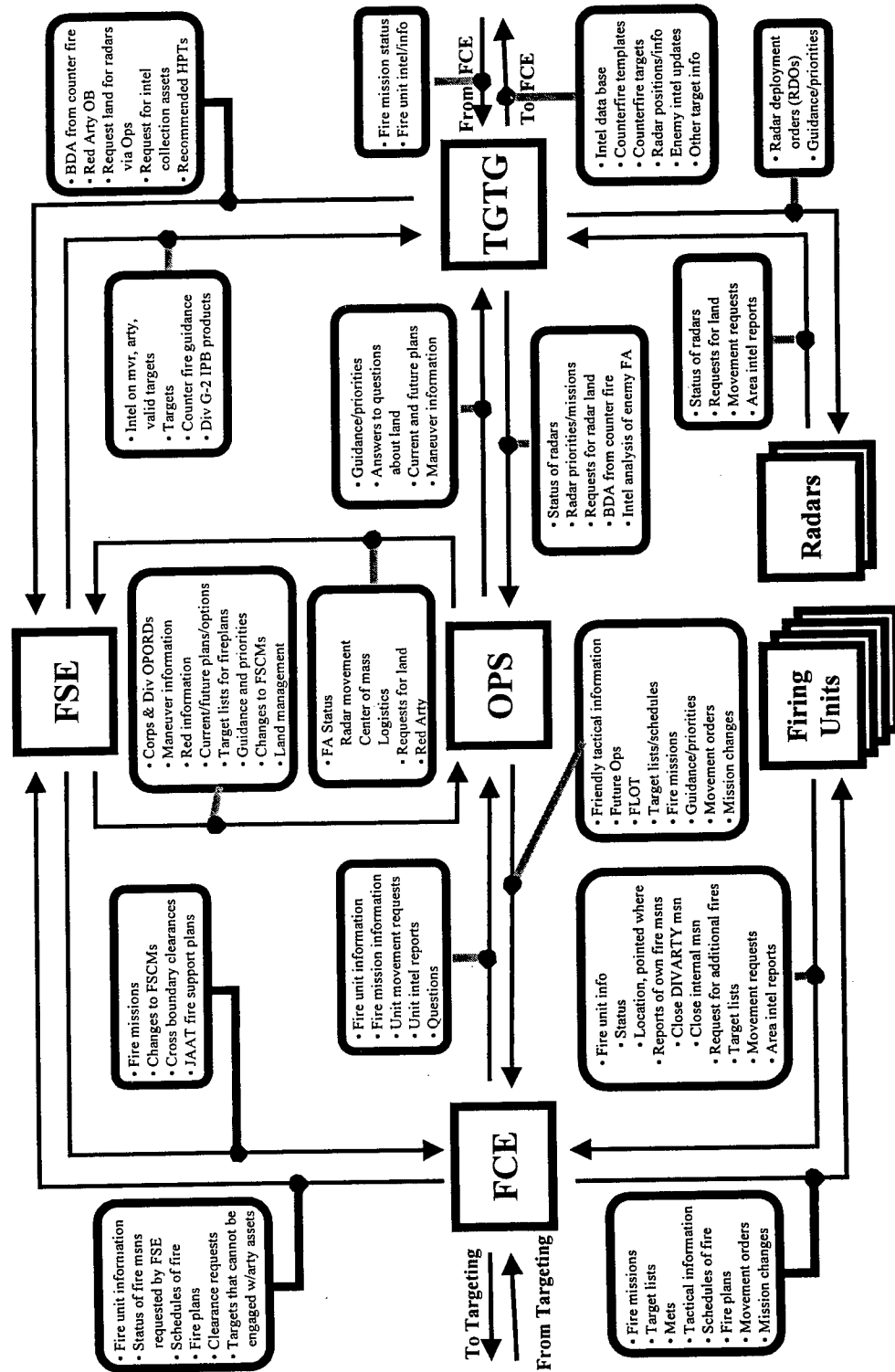
Not applicable
Opportunity for improvement
Satisfactory
Commendable

**DivArty Targeting Section
(Continued)**

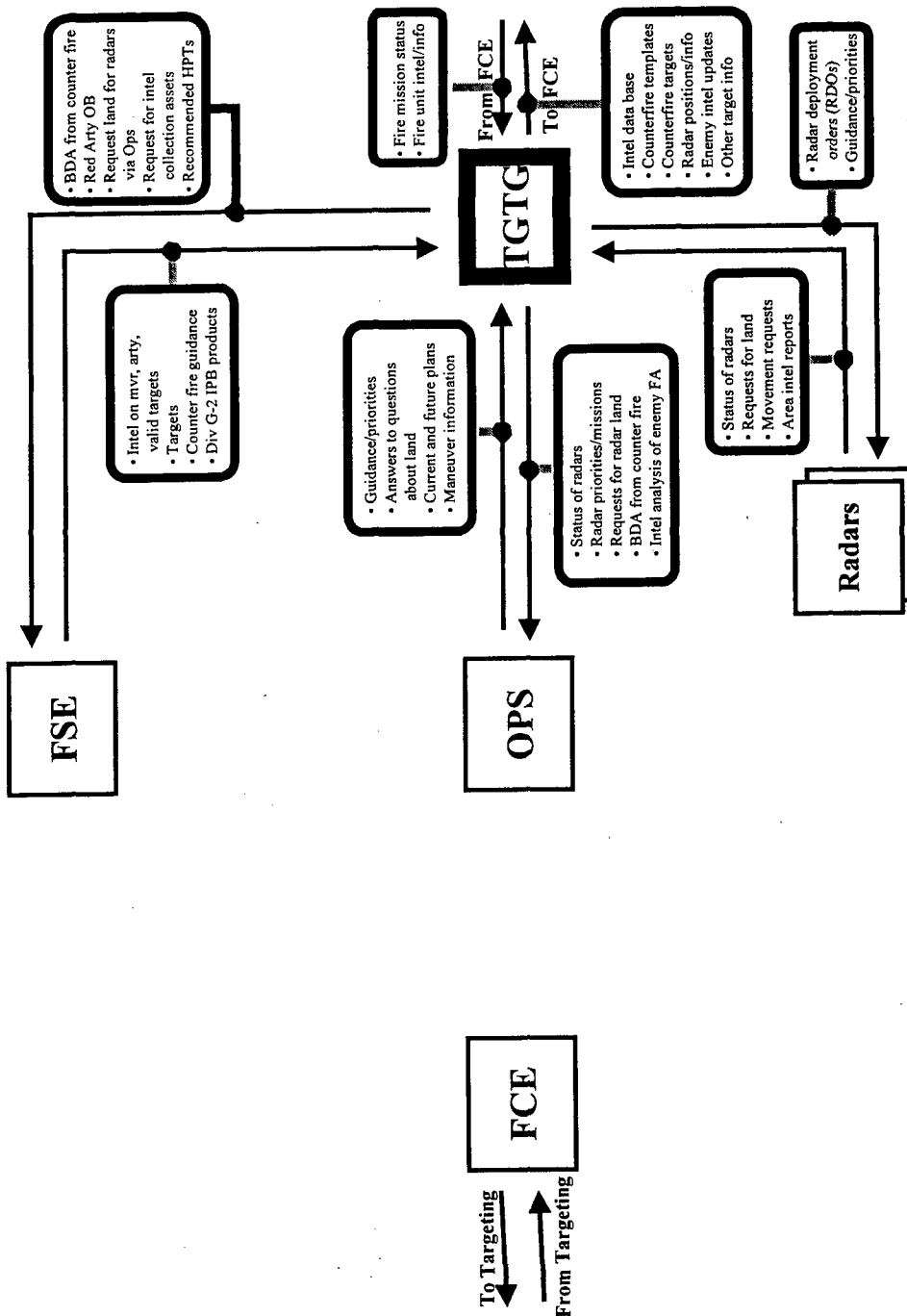
	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Processes (Continued)				
How well were appropriate inputs and documents used?				
Were appropriate personnel (external/internal) consulted?				
How well did key personnel provide relevant input?				
Were doctrinal principles and cmdr's philosophies adhered to?				
Were matters sufficiently discussed? Alternatives addressed?				
Was each output consistent with cmdr's guidance/intent?				
Were outputs produced and distributed in a timely manner?				
Was a "mini-AAR" conducted w/in S2 Tgt'ing after each activity?				

Comments (fixes/lessons learned/critical incidents/examples):

Input/Output Flow Among DivArty Elements



Input/Output Flow Among DivArty Elements Targeting (TGTG)



TGT-6

B-TGT-6

DivArty Targeting Element

Inputs:

- Div OPORD
- FSE rpts
- Div G2 IPB products

Process: Conduct Intelligence Preparation of the Battlefield (IPB)

1. In coordination with Division G-2 and FSE, define the battlefield environment.
2. In coordination with Division G-2 and FSE, describe battlefield effects.
3. In coordination with Division G-2 and FSE, provide threat evaluation.
4. In coordination with Division G-2 and FSE, conduct threat integration.
5. Prepares intel data base and identifies critical nodes, NAIs, TAIs, and HVTs.
6. Prepares intel estimates and the intel annex for the FA Support Plan.

Output/Product:

- Counterfire templates
- Intel data base
- HVTs
- Critical nodes
- NAIs & TAIs
- Intel estimates
- Intel annex

Inputs:

- Div OPORD
- FSE rpts
- Div G2 rpts

Process: Develop Targets and Potential Targets

1. Determine FA targeting information, what is available and what is missing; request missing info from Division G2 Section.
2. Evaluate data and select targets for engagement.
3. Evaluate TSS and recommend changes when necessary.
4. Disseminate targeting data to all concerned as quickly as

Output/Product:

- Requests for intel collection
- Recommended changes to

Inputs:

- Div OPORD
- FSE rpts
- Div G2 rpts

Process: Monitor and Recommend Employment of Organic and Attached Target Acquisition Assets

1. Advise S3 and FSE on employment of target acquisition (TA) assets.
2. Recommend TSS to S3 and FSE.
3. Perform target value analysis (TVA) and determine high value targets (HVTs). Recommend list of high payoff targets (HPTs) to S3 and FSE.
4. Prepares and maintains TA capabilities chart and overlays to show coverage and identify areas not covered.
5. Prepares Radar Deployment Orders (RDOs) for inclusion into FA Support Plan.

Output/Product:

- TA Missions
- Recommended TSS and HPTs
- RDOs

**Training Objective Self-Assessment Tools for
Division Fire Support Element
Mini-AARs**

1. **Training Objective.** Train the FSE Section in the planning, coordination, integration, and synchronization of fire support operations. Major tasks involved are:

- a. Conduct fire support coordination in support of ground operations.
- b. Synchronize fire support operations.
- c. Conduct fire support planning.
- d. Coordinate target attack.
- e. Process target attack.

2. **Self-Assessment and Feedback (Background/Purpose).**

a. One of the major challenges to assessing training performance and giving meaningful feedback is finding the right people with the right expertise to conduct the assessment. At lower echelons, those personnel can be found in like units or in higher echelon units and can be tasked to perform assessment and feedback for other units' training. But for a division, it is often times impractical to task like or higher units outside of the division for personnel. Additionally, during actual combat or for training at times other than during a major joint exercise, expert observers/controllers/trainers will not be present to provide the necessary feedback for improvement. So where does one find the required expertise? It can be found within the unit's own staff personnel. Therefore, the training performance measures and feedback methods contained in this guide were designed for **self-assessment** by personnel in those division artillery staff elements involved with fire support operations.

b. Many of the tasks performed by DivArty staff elements in fire support operations are process oriented, as opposed to outcome oriented (see page FSE-7). To perform the processes involves, to a large degree, the performance of military "art" based on collective judgment. This is something difficult to measure *objectively*. It was, therefore, necessary to derive mainly *subjective* performance measurement tools.

c. The Self-Assessment Tools are to be used by the senior officer in charge of each FSE shift at both the DMAIN and DTAC to conduct a 10-15 minute mini-AAR (after action review) for his shift at the conclusion of each iteration or phase of its fire support processes. This allows him to give and receive feedback on how well the process was performed and on what needs to be fixed or improved for the next iteration. The Self-Assessment Tools:

- 1) Provide a reminder and a format to conduct on-going, semi-structured reviews of what's being done, for what purpose, and how well it's being done.

- 2) Provide a record of performance progress throughout the duration of a training exercise or during actual combat.
- 3) Provide a record of lessons learned for inclusion into the overall DivArty AAR.
- 4) Identify tasks which require additional training or need added emphasis in future iterations of the process being performed and in future training exercises.

3. **Instructions.** The attached Self-Assessment Tool (pages FSE-3 and FSE-4) for the fire support element (FSE) is in the form of questions for the senior officer in charge of each FSE shift at both the DMAIN and DTAC to ask himself and the members of his shift while conducting a mini-AAR prior to the conclusion of each shift or after a major process has been accomplished. Pages FSE-5 and FSE-6 are provided as a ready reference and show input/output flow for the DivArty as a whole and for the FSE section in particular.

- 1) The date/time and person conducting the mini-AAR should be filled in, so that a record of progress can be maintained, and any future questions can be directed to the appropriate person.
- 2) Any of the "Products/Outputs" which were developed should be rated as to how effective they are.
- 3) Each of the questions under "Assessment of Processes" should be discussed and rated. Any examples of significant or critical events arising from these discussions should be written in the "Comments" section on the back or attached on separate sheets.
- 4) Lessons learned, fixes to problems, or other relevant information discovered during the mini-AAR should be addressed with the on-coming shift.

DivArty Fire Support Element (FSE)

Date, Time, Prepared by:

Self-Assessment Checklist

Not applicable
 Opportunity for improvement
 Satisfactory
 Commendable

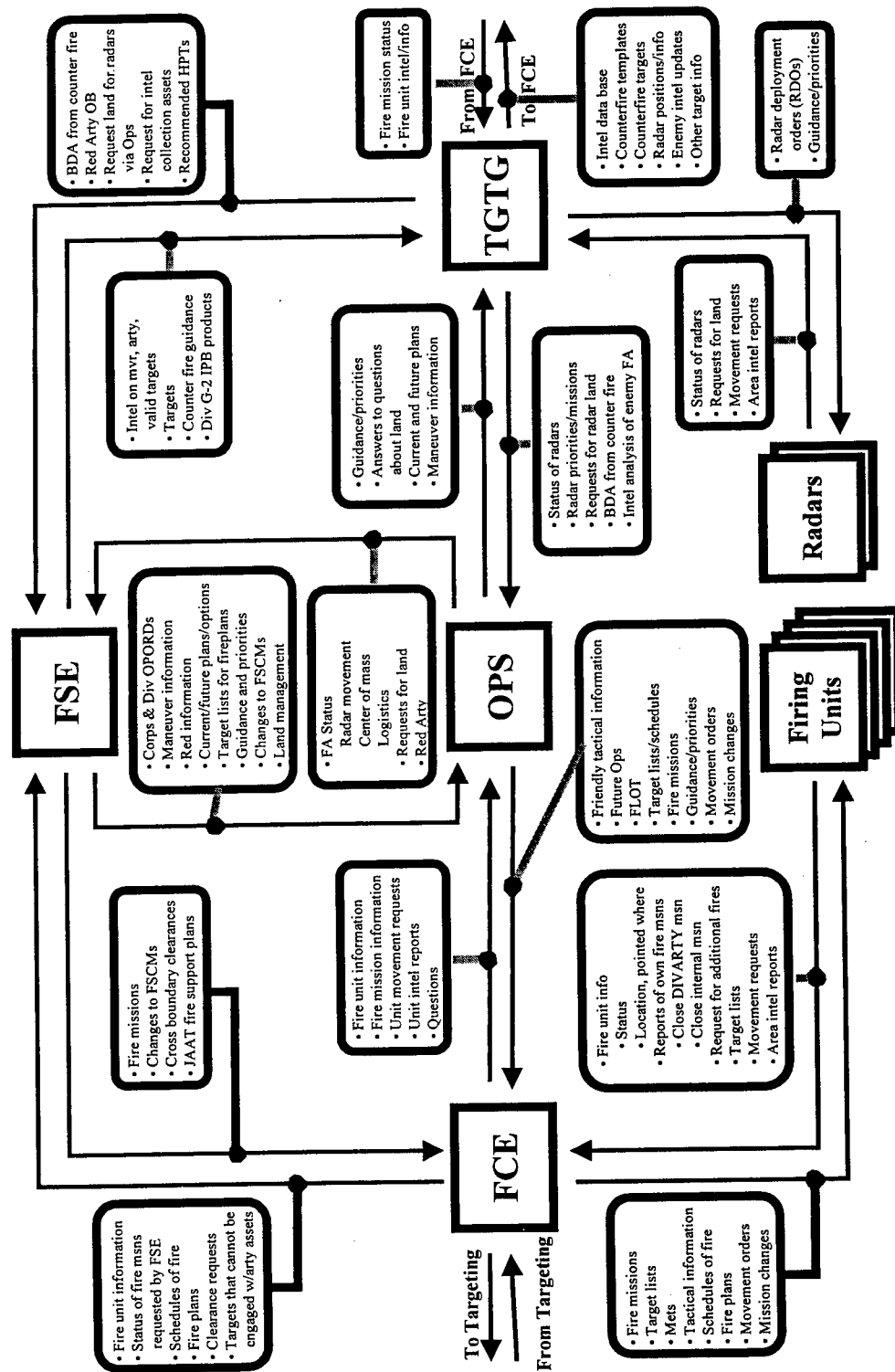
Assessment of Products/Outputs				
Fire support portion of division OPLAN/OPORD				
Fire Support Annex to division OPLAN/OPORD				
Fire missions				
Close air support requests				
Air interdiction requests				
Cross boundary fires clearances				
Changes to fire support coordination measures (FSCM)				
Joint air attack team (JAAT) fire support				
Assessment of Processes				
Was FS planning conducted simultaneously w/maneuver planning?				
Were all FS portions of Corps OPORD considered?				
Did ALO provide necessary sortie information?				
Were G-2's IPB products considered and passed to DivArty?				
Was DivArty Cmdr's guidance solicited? ...used?				
Did FS coordination support cmdr's intent/concept of operations?				
Was FS planning and execution synchronized w/other forces?				
Were attacks on tgt's coordinated and processed effectively?				
Was coordination with higher & adjacent units maintained?				
Was execution of FS matrix monitored and refined?				

**DivArty Fire Support Element (FSE)
(Continued)**

	Not applicable	Opportunity for improvement	Satisfactory	Commendable
Assessment of Processes (Continued)				
How well were appropriate inputs and documents used?				
Were appropriate personnel (external/internal) consulted?				
How well did key personnel provide relevant input?				
Were doctrinal principles and cmdr's philosophies adhered to?				
Were matters sufficiently discussed? Alternatives addressed?				
Was each output consistent with cmdr's guidance/intent?				
Were outputs produced and distributed in a timely manner?				
Was a "mini-AAR" conducted w/in the FSE after each activity?				

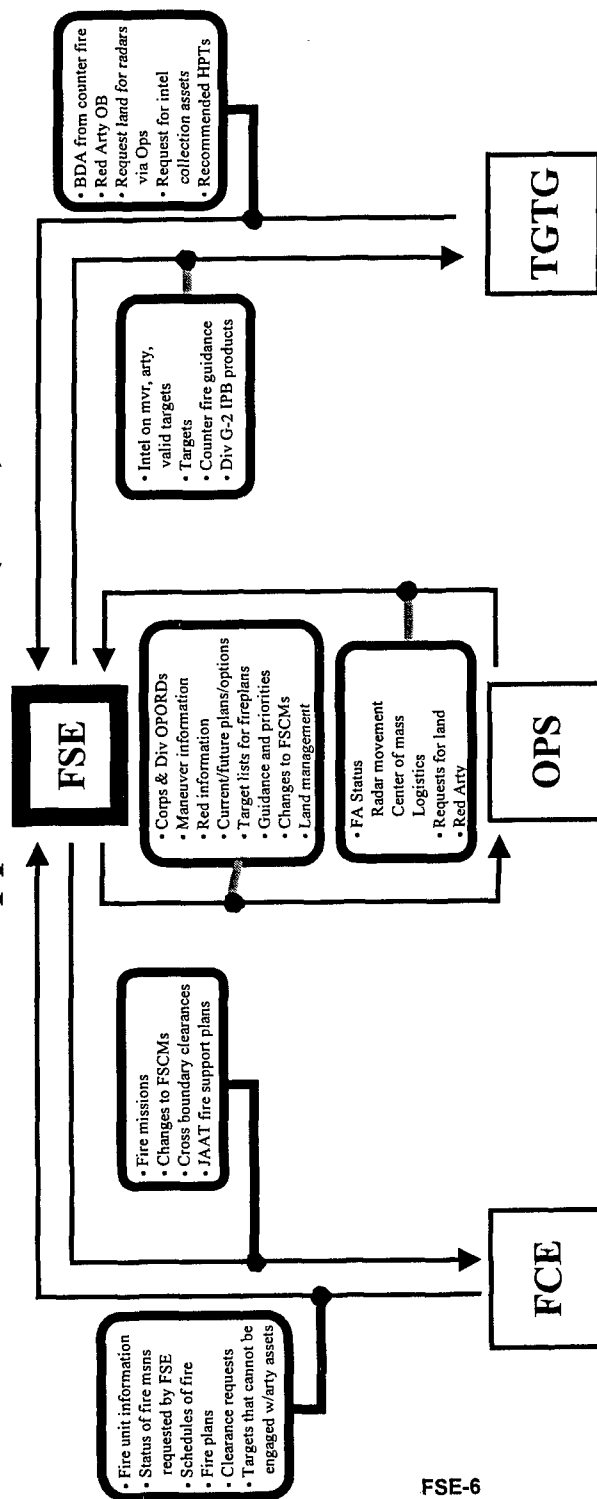
Comments (fixes/lessons learned/critical incidents/examples):

Input/Output Flow Among DivArty Elements



Input/Output Flow Among DivArty Elements

Fire Support Element (FSE)



FSE-6

B-FSE-6

Division Fire Support Element(FSE)

Inputs:	Process: Plan, Coordinate, Integrate and Synchronize Fire Support Operations	Output/Product:
<ul style="list-style-type: none"> • Corps OPORD • Div Cdr guidance • G2 IPB products • DivArty Cdr guidance • Corps Arty guidance • ALO sortie info 	<ol style="list-style-type: none"> 1. Conduct fire support planning simultaneously with G3 maneuver planning. 2. Conduct fire support coordination in support of Division Commander's intent and concept of operation. 3. Synchronize fire support planning and execution with division organic and supporting forces and fires. 4. Coordinate and process target attacks. 	<ul style="list-style-type: none"> • Fire Support portion of OPORD • Fire Support Annex • Fire Missions • Close Air Support requests • Air Interdiction requests • Changes to FSCM • Cross boundary fires clearances • JAAT fire support

APPENDIX C
EVALUATION OF SELF ASSESSMENT PACKAGE AND MINI-AARS

Directions: Please check one of the categories of agreement or disagreement for each item below. Abbreviate the name of your cell (staff section): OPS, TGTG, FSE, FCE.

Need/value of mini-AAR/self-assessment

Date: _____ Time: _____ Cell (staff section): _____ SSN (last 4 digits) _____.

1. The mini-AAR/self-assessment approach provides useful training feedback to supplement the AARs currently given (check one of the boxes in the following line).

Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
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Comments:

2. The mini-AAR/self-assessment approach helped improve performance for me or my cell over the 3-day exercise (check one of the following boxes).

Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
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Comments:

3. My cell was able to pick out training problems that we might have overlooked without the self-assessment package (check one of the following boxes).

Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
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Comments:

4. A self-assessment package similar to this is not currently available to my unit (check below).					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					
5. A self-assessment package similar to this or an improved version would be useful in future exercises (check one of the following boxes).					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					

Features of self-assessment methods and tools (check one of the boxes below each item)

SSN (last 4 digits) _____

6. The instruction sheet was clear, well organized, and had about the right amount of information.					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					
7. Assessment checklist items were useful as memory joggers and could be answered.					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					
8. The input/output flow charts helped us to fill out the forms and conduct mini-AARs.					

Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					
<i>9. The table of inputs, processes, and outputs helped us to fill out the forms and conduct mini-AARs</i>					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					
<i>10. I felt that I could respond accurately to the self-assessment tools</i>					
Strongly Agree	Moderately Agree	Agree	Disagree	Moderately Disagree	Strongly Disagree
Comments:					